WALTER H. FLOOD & CO., INC.

Reference #4

Soil Investigation No. 7205-0010
Solid Waste Disposal Site
31st Street and Wolf Road
Westchester, Illinois

Prepared for

John Sexton Sand & Gravel Corporation
900 Jorie Boulevard
Oak Brook, Illinois 60521

August 3, 1972

I. Scope

This report has been prepared in accordance with generally accepted soil and foundation engineering practices, and represents the results of the subsoil investigation for the proposed extension of the Solid Waste Disposal Site on 31st Street west of Wolf Road in Cook County (near Westchester), Illinois.

The purpose of the investigation is to secure and log subsoil information, to record the geological nature, type, consistency and thicknesses of the various soil strata as encountered in the borings, to perform laboratory tests, and to evaluate all of the data obtained in order to make conclusions and recommendations to assist in the design and construction of the specific project at the location discussed herein. In the event that any changes in the design of the project, however slight, are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions and recommendations of this report modified or reaffirmed in writing. In the event that conclusions and recommendations based upon the data of this report are made by others, such conclusions and recommendations are not our responsibility unless a review is made and a concurring opinion submitted in writing.

II. Site Geology, Soil Conditions and Characteristics

The project site is located over a former preglacial stream valley. In the geological past when bedrock was exposed, flowing water eroded the bedrock surface. The center of this now buried valley is likely at about 24th Street where bedrock is likely covered with about 100 feet of later deposited glacial soils. The south and north banks of this buried stream channel are near 31st Street (the project site) and 18th Street, where bedrock is covered with as little as 11 feet of glacial soils. The later glacial ice filled this buried valley with various layers of clay tills, silts and sands.

The project site is located on the south slope of this bedrock valley. Depths to bedrock ranged from a minimum of 11 feet to over the maximum depth of 50 feet. We have prepared soil profiles from the soil boring data and these are enclosed with this report. The last glacial ice sheet over the project site, called the Tinley Glacier, left a sheet of clay till. This clay till , encountered in all of the test borings (except 11, 12 and 13, where the clay has likely been removed), is a highly impervious clay, generally weathered and desiccated to a hard consistency in an upper "crust". The thickness of the Tinley clay tills range from about 11 to 36 feet at the boring locations At the south end of the project site the clay tills lie directly on the bedrock surface

II. Site Geology, Soil Conditions and Characteristics (Continued)

but as the bedrock surface elevation decreases to the north, the clay tills are underlain by various layers of glacio-fluvial silts, sands and gravel-boulder drift. At the maximum depth borings of 50 feet an un-identifiable glacial drift layer was noted in the borings at depths of 37 to 43 feet. This older drift is a silt-sand-gravel mixture and is considered moderately impermeable. The bedrock is the Silurian Niagran dolomite, generally thinly bedded, argillaceous and fractured.

III. Hydrogeology

The surface drainage of the project site is northward and eastward to tributaries to Salt Creek. The partially excavated area of borings 11, 12 and 13 and the existing excavation to the north temporarily disrupt the surface drainage and part of the surface runoff is into these temporary excavations.

The ground-water flow in the glacial soils likely will eventually assume a flow coincident with the surface topography pattern, which is easterly. The ground-water data from project site, which is limited in area, indicated a general ground-water flow towards the north towards the presently deeper excavations in the land fill.

Ground-water flow in the bedrock aquifer is southerly[1] towards Salt Creek.

IV. Recommendations for Landfill Extension

Excavations for the landfill extension should be limited to the upper Tinley tills to reduce the potential for gound-water pollution and to avoid the problems of ground water likely to be encountered in the more pervious water bearing underlying glacio-fluvial soils. This will result in a decreasing excavation depth as the present excavation is continued southerly. A minimum of 5 feet of the impervious clays should be left in place between the base of the fill to be placed and the underlying soil or rock. With respect to the partially excavated area west of the entrance road, the south part has been apparently excavated through the clay tills, and this area should be sealed with an impervious liner of clay, well compacted. A minimum thickness of 2 feet is recommended as a liner. TRY 5'

V. Drainage Changes During and After Filling

The proposed extension of the landfill site will not alter the direction of flow of the ground water in the Silurian Niagran dolomite bedrock. Its discharge will continue to be southward.

[1]Ground Water Resources of DuPage County, Cooperative Ground Water Report 2, Illinois State Geological Survey, State Water Survey

V. Drainage Changes During and After Filling (Continued)

Ground-water flow in the deeper tills on the north part of the site are also expected to be virtually unaffected by the proposed site extension. This deeper flow in the buried bedrock valley is likely in the direction of the slope of the valley floor, which is northeasterly.

The ground-water flow in the upper fill materials will be dependent upon the final grading and the slope of the refuse layers in the landfill. The final grading plan should be sloped west to east to approach the original natural topography as much as possible. The fills in the landfill normally are alternate layers of low permeability materials (as refuse) and layers of high permeability (daily cover materials). The flow of the ground water will normally then be in the direction of the slope of the more impermeable cover materials. Since the proposed extension of the fill is to commence from the existing pit, it is likely that this upper flow of ground water in the fill will be directed toward the deeper fill areas presently being placed.

VI. Ground-Water Readings

Ground-water readings were taken in the test borings. The test borings were taken by a dry method (hollow stem auger) and observations made of seepage into the bore holes while drilling. When bedrock was encountered, no sudden surge or influx of ground water was noted. After coring of bedrock was completed, the casing was left in place and at least 2 water level measurements taken to try to determine the pieziometric level of ground water in the bedrock. Finally, 24 hours after completion of the test boring, another reading was taken.

It is pointed out that our interpretations of the ground water levels on the site have been made based upon these water level readings. It must be noted that fluctuations in the level of the ground water may occur due to variations in rainfall, temperature, soil permeability, and other factors not evident at the time of the water level measurements. The probability of ground-water level variation is anticipated, and the design drawings and specifications should accommodate such possibilities. Construction planning should be based upon such assumptions and variations of the ground water.

VII. Conditions of the Investigation

A. Changed Soil Conditions

The analysis and recommendations made in this report are based upon the data obtained from the thirteen borings performed at the locations as indicated on your furnished

VII. Conditions of the Investigation (Continued)

A. Changed Soil Conditions (Continued)

drawing. This report does not reflect any soil variations which may occur between the borings. Since the nature and extent of soil variations between the borings may not become evident until construction, it may be necessary to re-evaluate the recommendations of this report after performing on-site observations during the excavation period of construction. It is recommended that we be retained to perform continuous construction review during the excavation, backfill, and foundation phases of the project. We can assume no responsibility for the construction compliance with the recommendations unless we have been retained to perform this on-site review during construction.

B. Soil Boring Logs

The soil boring logs have been prepared from the field and laboratory data. The soils descriptions have been made by visual classification by qualified soils personnel. Consistency classifications are based upon the laboratory test or field penetration test data. The stratification lines may represent approximate boundaries between soil types as the change may be transitional. For instance, coloring changes in the upper soils are often due to weathering, and are usually transitional rather than abrupt. Natural topsoil stratification is almost always transitional. Soil stratification by consistency may be abrupt in the case of stratification of soils of differing origin, but may be transitional in soils of the same origin.

C. Laboratory Soil Tests

Laboratory tests performed on samples of the soils consisted of calibrated penetrometer tests and natural water content (ASTM D2216-66). The results of these tests are entered on the soil boring logs.

G. Field Investigation

The field investigation was started on March 7, 1972 and completed on June 15, 1972. The test borings were made with a hollow stem auger type of drill rig, utilizing split tube (ASTM D1586-67) type of sampling at five-foot maximum intervals. Thirteen test borings were made. The soil types, nature, consistency, strata depths and thicknesses, and the sampling data were recorded on the field logs. In the split tube sampling, the standard penetration "N" (the number of blows of a 140-pound hammer dropping 30 inches to drive the standard 2-inch O.D. split tube) was recorded in 6-inch increments and entered on the field logs. Representative samples from the split tube were placed in jars, sealed, and delivered to the laboratory for further classification and testing.

VII. Conditions of the Investigation (Continued)

G. Field Investigation (Continued)

During drilling, immediately after completion of drilling, and 24 hours after completion of drilling, readings of the ground water were taken in the bore holes and the readings recorded on the boring logs.

Relative ground surface elevations were taken of the bore holes with a reference elevation of mean sea level from the furnished topographical survey. Test borings were located to have an accuracy of plus or minus 5 feet from the dimensioned location.

FOR: Sexton Filling & Grading Corporation

PROJECT: 12100 West 31st Street

LOCATION Westchester, Illinois

METHOD OF BORING: A & C
SPLIT SPOON SIZE: 2 IN.
WT. OF HAMMER 140 LBS.
INCH DROP 30
SHELBY TUBE SIZE
CASING USED 15'-24" IDHS

WATER LEVEL READINGS
Dry W.D.
B.C.R.
8.0' A.C.R.
9.2'@24 HRS. AFTER DRILLING
HRS. AFTER DRILLING

SOIL BORING LOG NO. 1

WALTER H. FLOOD & CO., INC.
• Engineers •
• CHICAGO • KALAMAZOO •

DATE OF BORING: 3-7-72 3-8-72
BY: BJ,JC,MC:bc
JOB NO.: 7205-0010
VERTICAL SCALE: 1"=10'

ELEV.	DEPTH	S	T	N	L	R	DD	DESCRIPTION
								Ground surface
650.4	0.0	1	ss	8				Brown&black clay, fill
646.9	3.5	2	ss	12				Black clay, very tough
640.9	6.0	3	ss	16				Brown to gray clay, trace of small gravel, very tough to hard
		4	ss	40				
		5	ss	50/4"				
		6	ss	100/1"				
637.4	13.0	7	ss	100/1"				Brownish-gray dolomite, weathered, fractured, dense
		8	C					
		9	C					
624.4	26.0							End of boring

Qu ● LABORATORY O PENETROMETER X 1000

2 4 6 8 10

3000 19.0 23.8 13.4 11.8 31.6 6500 7500 66.5 9000+ 9000+

10 20 30 40 50

Wc ▲ NATURAL

ELEV. DEPTH S T N L R DD DESCRIPTION

LEGEND: DEPTH—FEET BELOW GROUND SURFACE
S —SAMPLE NUMBER
T —TYPE OF SAMPLE
N —PENETRATION, BLOWS PER FOOT
L —SAMPLE LENGTH
R —LENGTH OF SAMPLE RECOVERED
DD —DRY DENSITY, LB. PER CU. FOOT

WO —WASHOUT
A —AUGER
HS —HOLLOW STEM AUGER
SS —SPLIT SPOON
ST —SHELBY TUBE
FT —FISH TAIL
C —CORE
Wc —WATER CONTENT PERCENT

BCR—BEFORE CASING REMOVAL
ACR—AFTER CASING REMOVAL
WD —WHILE DRILLING
WCI —WET CAVE IN
DCI —DRY CAVE IN
Qu —UNCONFINED COMPRESSIVE STRENGTH POUNDS PER SQUARE FOOT

FOR: Sexton Filling & Grading Corporation

PROJECT: 12100 West 31st Street

LOCATION: Westchester, Illinois

SOIL BORING LOG NO. 2

WALTER H. FLOOD & CO., INC.

• Engineers •

• CHICAGO • KALAMAZOO •

METHOD OF BORING: A & C
SPLIT SPOON SIZE: 2 IN.
WT. OF HAMMER 140 LBS.
INCH DROP 30
SHELBY TUBE SIZE
CASING USED 15'-2½" IDHS

WATER LEVEL READINGS
Dry W.D.
B.C.R.
12.6' A.C.R.
10.5'@24HRS. AFTER DRILLING
HRS. AFTER DRILLING

DATE OF BORING: 3-9-72, 3-10-72
BY: BJ,CN,JC:bc
JOB NO.: 7205-0010
VERTICAL SCALE: 1"=10'

ELEV.	DEPTH	S	T	N	L	R	DD	DESCRIPTION
								Ground surface
653.0	0.0							Black clay loam
652.0	1.0	1	ss	26				Brown and gray clay, trace of small gravel, hard
		2	ss	28				
		3	ss	34				
		4	ss	20				
642.0	11.0	5	ss	27				Gray clayey silt, medium dense
639.5	13.5	6	ss	150				See note
637.5	15.5	7	C					Brown to gray dolomite, thinly bedded, fractured, dense
626.5	26.5							End of boring

Note: Gray clayey silt, some small to large gravel, stone fragments, dense

Qu ● LABORATORY O PENETROMETER
X 1000
2 4 6 8 10

20.2 ▲ O 8500
19.3 ▲ O
18.2 ▲ 9000+
17.1 ▲ O 4000 O
11.1 ▲ 9000+
2000 O
11.1 ▲ O
3000

10 20 30 40 50
Wc ▲ NATURAL

LEGEND:
DEPTH—FEET BELOW GROUND SURFACE
S —SAMPLE NUMBER
T —TYPE OF SAMPLE
N —PENETRATION, BLOWS PER FOOT
L —SAMPLE LENGTH
R —LENGTH OF SAMPLE RECOVERED
DD —DRY DENSITY, LB. PER CU. FOOT

WO —WASHOUT
A —AUGER
HS —HOLLOW STEM AUGER
SS —SPLIT SPOON
ST —SHELBY TUBE
FT —FISH TAIL
C —CORE
Wc —WATER CONTENT PERCENT

BCR—BEFORE CASING REMOVAL
ACR—AFTER CASING REMOVAL
WD —WHILE DRILLING
WCI —WET CAVE IN
DCI —DRY CAVE IN
Qu —UNCONFINED COMPRESSIVE STRENGTH POUNDS PER SQUARE FOOT

FOR: Sexton Filling & Grading Corporation

PROJECT: 12100 West 31st Street

LOCATION Westchester, Illinois

SOIL BORING LOG NO. 3

WALTER H. FLOOD & CO., INC.

• Engineers •

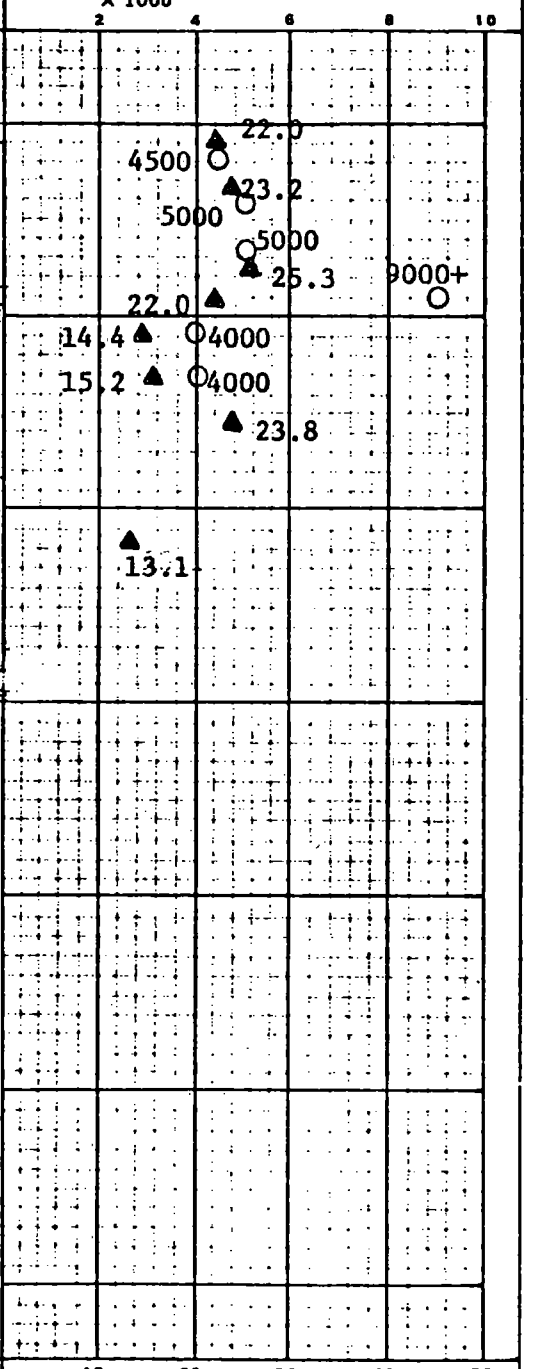
• CHICAGO • KALAMAZOO •

METHOD OF BORING: A
SPLIT SPOON SIZE: 2 IN.
WT. OF HAMMER 140 LBS.
INCH DROP 30
SHELBY TUBE SIZE
CASING USED 30'-2¼" IDHS

WATER LEVEL READINGS
17.0' W.D.
B.C.R.
11.0' A.C.R.
10.0'@24 HRS. AFTER DRILLING
HRS. AFTER DRILLING

DATE OF BORING: 3-9-72
BY: CN&JC:bc
JOB NO.: 7205-0010
VERTICAL SCALE: 1"=10'

ELEV.	DEPTH	S	T	N	L	R	DD	DESCRIPTION
648.4	0.0							Ground surface
647.4	1.0							Black clay loam
		1	ss	16				Brown and gray clay, very tough
		2	ss	8				
		3	ss	9				
639.9	8.5							
		4	ss	23				Brown and gray clay, trace of small gravel, hard to very tough
		5	ss	18				
		6	ss	20				
632.4	16.0							
		7	ss	24				Gray fine to medium sand, some silt, medium dense
629.9	18.5							
		8	ss	27				Gray fine sand and silt, medium dense
		9	ss	19				
		10	ss	16				
622.4	26.0							
		11	ss	22				See note
620.4	28.0							
		12	ss	100/1-5				Light gray and brown dolomite thinly bedded, very dense
		13	C					
		14	C					
610.4	38.0							
								End of boring
								Note; Gray silt, some small to large gravel, stone fragments, very dense



LEGEND:
DEPTH—FEET BELOW GROUND SURFACE
S —SAMPLE NUMBER
T —TYPE OF SAMPLE
N —PENETRATION, BLOWS PER FOOT
L —SAMPLE LENGTH
R —LENGTH OF SAMPLE RECOVERED
DD —DRY DENSITY, LB. PER CU. FOOT

WO —WASHOUT
A —AUGER
HS —HOLLOW STEM AUGER
SS —SPLIT SPOON
ST —SHELBY TUBE
FT —FISH TAIL
C —CORE
Wc —WATER CONTENT PERCENT

BCR—BEFORE CASING REMOVAL
ACR—AFTER CASING REMOVAL
WD —WHILE DRILLING
WCI —WET CAVE IN
DCI —DRY CAVE IN
Qu —UNCONFINED COMPRESSIVE STRENGTH POUNDS PER SQUARE FOOT

FOR: Sexton Filling & Grading Corporation

PROJECT: 12100 West 31st Street

LOCATION Westchester, Illinois

SOIL BORING LOG NO. 4

WALTER H. FLOOD & CO., INC.

• Engineers •

• CHICAGO • KALAMAZOO •

METHOD OF BORING: HS
SPLIT SPOON SIZE: 2 IN.
WT. OF HAMMER 140 LBS.
INCH DROP 30
SHELBY TUBE SIZE
CASING USED 50'-2¼" IDHS

WATER LEVEL READINGS
18.5' W.D.
18.0' B.C.R.
17.0' A.C.R.
16.7' @24 HRS. AFTER DRILLING
HRS. AFTER DRILLING

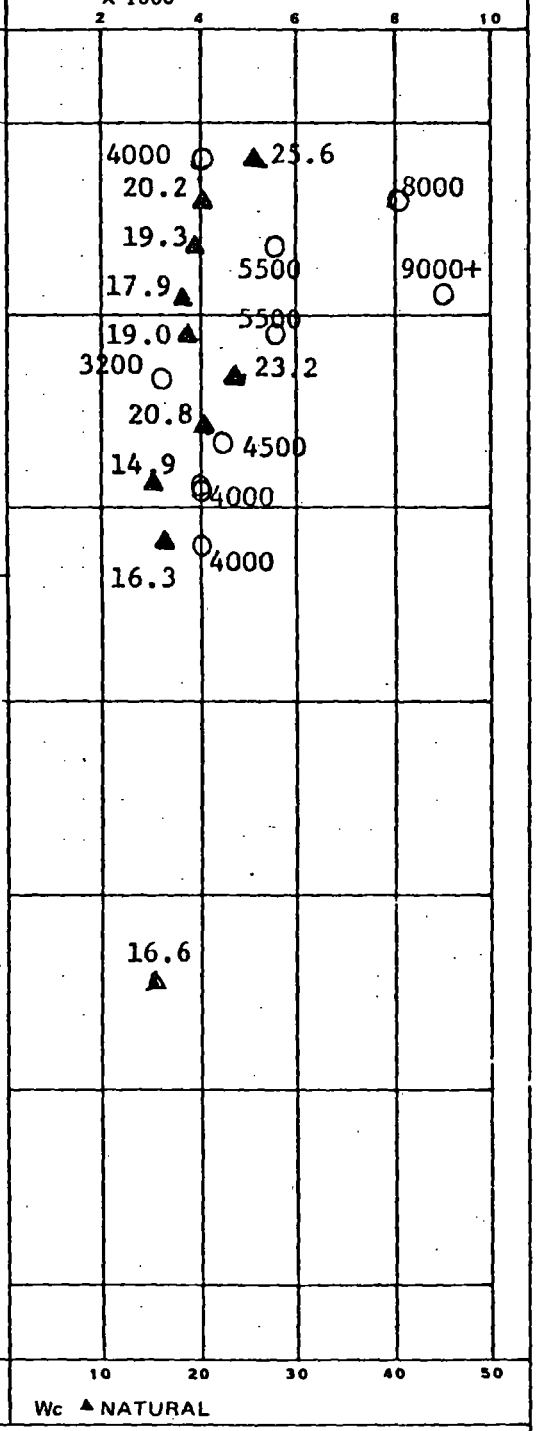
DATE OF BORING: 3-16-72

BY: BJ&JA:bc

JOB NO.: 7205-0010

VERTICAL SCALE: 1"=10'

ELEV.	DEPTH	S	T	N	L	R	DD	DESCRIPTION
								Ground surface
650.2	0.0							Black clay loam
648.7	1.5	1	ss	10				Brown and gray clay, very tough
		2	ss	13				
		3	ss	15				
641.7	8.5	4	ss	28				Brown to gray clay, trace of small gravel, hard to very tough
		5	ss	19				
		6	ss	12				
		7	ss	14				
		8	ss	14				
		9	ss	11				
626.7	23.5	10	ss	21				Gray medium sand, trace of silt, medium dense
		11	ss	32				
621.7	28.5	12	ss	48				Gray fine sand, some silt, dense
		13	ss	25				
		14	ss	31				
		15	ss	26				
		16	ss	18				
		17	ss	20				
606.7	43.5	18	ss	53				Gray silt, some fine to coarse sand with small to large gravel, occasional boulder, very dense
		19	ss	53				
		20	ss	67				
600.2	50.0							End of boring



ELEV.	DEPTH	S	T	N	L	R	DD	DESCRIPTION

LEGEND: DEPTH—FEET BELOW GROUND SURFACE
S —SAMPLE NUMBER
T —TYPE OF SAMPLE
N —PENETRATION, BLOWS PER FOOT
L —SAMPLE LENGTH
R —LENGTH OF SAMPLE RECOVERED
DD —DRY DENSITY, LB. PER CU. FOOT

WO —WASHOUT
A —AUGER
HS —HOLLOW STEM AUGER
SS —SPLIT SPOON
ST —SHELBY TUBE
FT —FISH TAIL
C —CORE
Wc —WATER CONTENT PERCENT

BCR—BEFORE CASING REMOVAL
ACR—AFTER CASING REMOVAL
WD —WHILE DRILLING
WCI —WET CAVE IN
DCI —DRY CAVE IN
Qu —UNCONFINED COMPRESSIVE STRENGTH POUNDS PER SQUARE FOOT

FOR: Sexton Filling & Grading Corporation

PROJECT: 12100 West 31st Street

LOCATION: Westchester, Illinois

SOIL BORING LOG NO. 5

WALTER H. FLOOD & CO., INC.

• Engineers •

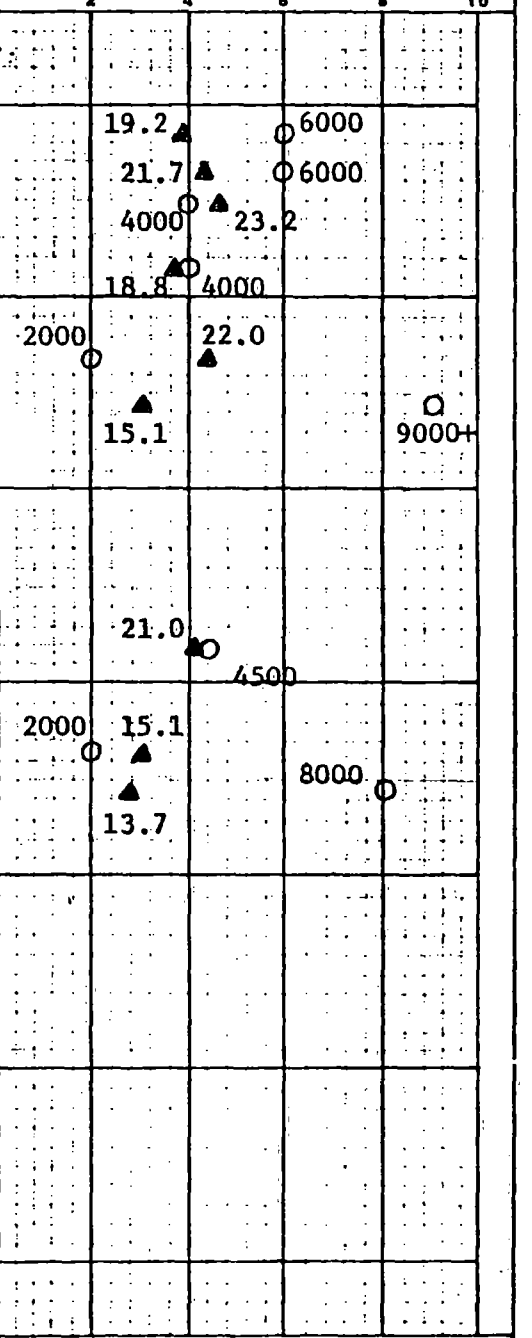
• CHICAGO • KALAMAZOO •

METHOD OF BORING: HS
SPLIT SPOON SIZE: 2 IN.
WT. OF HAMMER 140 LBS.
INCH DROP 30
SHELBY TUBE SIZE
CASING USED

WATER LEVEL READINGS
15.0' W.D.
15.0' B.C.R.
14.2' A.C.R.
12.1' @24HRS. AFTER DRILLING
HRS. AFTER DRILLING

DATE OF BORING: 5-8-72
BY: DL&BS:bc
JOB NO.: 7205-0010
VERTICAL SCALE: 1"=10'

ELEV.	DEPTH	S	T	N	L	R	DD	DESCRIPTION
								Ground surface
649.6	0.0	1	ss	15				Brown and gray clay, trace of small gravel, very tough
		2	ss	13				
		3	ss	8				
		4	ss	9				
639.6	10.0	5	ss	20				Gray silt, clay and medium sand layers, medium dense
		6	ss	13				
634.6	15.0	7	ss	18				Gray clay, trace of small gravel, hard
632.1	17.5	8	ss	21				Gray medium to coarse sand, some silt, clay, medium dense
629.6	20.0	9	ss	31				Gray fine sand and silt, dense
		10	ss	83				
		11	ss	77				
622.1	27.5	12	ss	13				Gray clay, thin sand layers, very tough
619.6	30.0	13	ss	48				Gray medium sand, trace of silt, dense
617.1	32.5	14	ss	9				Gray silty clay, trace of small gravel, tough to very tough
		15	ss	29				
612.1	37.5	16	ss	34				Gray silt, some fine to coarse sand, small to large gravel, occasional boulder, very dense
		17	ss	101				
		18	ss	61				
		19	ss	125				
		20	ss	104				
		21	ss	145				
599.6	50.0							End of boring



LEGEND:
DEPTH—FEET BELOW GROUND SURFACE
S —SAMPLE NUMBER
T —TYPE OF SAMPLE
N —PENETRATION, BLOWS PER FOOT
L —SAMPLE LENGTH
R —LENGTH OF SAMPLE RECOVERED
DD —DRY DENSITY, LB. PER CU. FOOT

WO —WASHOUT
A —AUGER
HS —HOLLOW STEM AUGER
SS —SPLIT SPOON
ST —SHELBY TUBE
FT —FISH TAIL
C —CORE
Wc —WATER CONTENT PERCENT

BCR—BEFORE CASING REMOVAL
ACR—AFTER CASING REMOVAL
WD —WHILE DRILLING
WCI —WET CAVE IN
DCI —DRY CAVE IN
Qu —UNCONFINED COMPRESSIVE STRENGTH POUNDS PER SQUARE FOOT

6

FOR: Sexton Filling & Grading Corporation

PROJECT: 12100 West 31st Street

LOCATION: Westchester, Illinois

METHOD OF BORING: HS
SPLIT SPOON SIZE: 2 IN.
WT. OF HAMMER 140 LBS.
INCH DROP 30
SHELBY TUBE SIZE
CASING USED 18'-2½" IDHS

WATER LEVEL READINGS
Dry W.D.
B.C.R.
Dry A.C.R.
14.5'@24HRS. AFTER DRILLING
HRS. AFTER DRILLING

SOIL BORING LOG NO. 6

WALTER H. FLOOD & CO., INC.
• Engineers •
• CHICAGO • KALAMAZOO •

DATE OF BORING: 3-9-72
BY: BJ&JA:bc
JOB NO.: 7205-0010
VERTICAL SCALE: 1"=10'

ELEV.	DEPTH	S	T	N	L	R	DD	DESCRIPTION
659.0	0.0							Ground surface
		1	ss	16				Brown and gray clay, trace of small gravel, hard
		2	ss	21				
652.0	7.0	3	ss	42				
650.5	8.5							See note 1
		4	ss	17				Brown to gray clay, trace of small gravel, hard
		5	ss	22				
		6	ss	33				
643.0	16.0	7	ss	50/5"				
								See note 2
640.5	18.5							
		8	C					Light gray and brown dolomite thinly bedded, fractured, very dense
		9	C					
		10	C					
625.5	33.5							End of boring

Note1: Brown silt, trace of clay, dense

Note2: Gray silt, some fine to coarse sand, small to large gravel, stone fragments very dense

Qu ● LABORATORY O PENETROMETER
X 1000
2 4 6 8 10

19.9
19.3
8.0
17.4
14.2
11.8
9.2
9000+
9000+
9000+
9000+
9000+
8500

10 20 30 40 50
Wc ▲ NATURAL

LEGEND: DEPTH—FEET BELOW GROUND SURFACE
S —SAMPLE NUMBER
T —TYPE OF SAMPLE
N —PENETRATION, BLOWS PER FOOT
L —SAMPLE LENGTH
R —LENGTH OF SAMPLE RECOVERED
DD —DRY DENSITY, LB. PER CU. FOOT

WO —WASHOUT
A —AUGER
HS —HOLLOW STEM AUGER
SS —SPLIT SPOON
ST —SHELBY TUBE
FT —FISH TAIL
C —CORE
Wc —WATER CONTENT PERCENT

BCR—BEFORE CASING REMOVAL
ACR—AFTER CASING REMOVAL
WD —WHILE DRILLING
WCI —WET CAVE IN
DCI —DRY CAVE IN
Qu —UNCONFINED COMPRESSIVE STRENGTH POUNDS PER SQUARE FOOT

L-1

FOR: Sexton Filling & Grading Corporation

PROJECT: 12100 West 31st Street

LOCATION Westchester, Illinois

METHOD OF BORING: HS
SPLIT SPOON SIZE: 2 IN.
WT. OF HAMMER 140 LBS.
INCH DROP 30
SHELBY TUBE SIZE
CASING USED 33'-2¼" IDHS

WATER LEVEL READINGS
23.5' W.D.
17.7' B.C.R.
10.0' A.C.R.
11.4'@24 HRS. AFTER DRILLING
HRS. AFTER DRILLING

SOIL BORING LOG NO. 7

WALTER H. FLOOD & CO., INC.
• Engineers •
• CHICAGO • KALAMAZOO •

DATE OF BORING: 3-15-72
BY: BJ&JA:bc
JOB NO.: 7205-0010
VERTICAL SCALE: 1"=10'

ELEV.	DEPTH	S	T	N	L	R	DD	DESCRIPTION
								Ground surface
657.0	0.0	1	ss	14				Brown and gray clay, trace of small gravel, hard
		2	ss	26				
		3	ss	33				
648.5	8.5	4	ss	12				Brown clayey small gravel, some fine to coarse sand, ~~medium dense~~
646.0	11.0	5	ss	9				Gray clay, some small to medium gravel, occasional boulder, tough to very tough
		6	ss	15				
		7	ss	25				
		8	ss	13				
		9	ss	18				
633.5	23.5	10	ss	20				Gray small to large gravel, some silt, fine to coarse sand, dense to medium dense
		11	ss	20				
		12	ss	64				
		13	ss	69				
624.0	33.0	14	C					Grayish brown dolomite, thinly bedded, frattured, very dense
617.0	40.0							End of boring

Qu ● LABORATORY O PENETROMETER
X 1000
2 4 6 8 10

22.6 ▲ 7000 O 9000+ O
18.5 ▲
17.4 ▲ 9000+ O
14.4 ▲
2500 O 16.8 ▲
12.3 ▲ 4000 O
12.1 ▲
13.6 ▲ 3000 O
18.2 ▲ 6000 O

10 20 30 40 50
Wc ▲ NATURAL

LEGEND: DEPTH—FEET BELOW GROUND SURFACE
S —SAMPLE NUMBER
T —TYPE OF SAMPLE
N —PENETRATION, BLOWS PER FOOT
L —SAMPLE LENGTH
R —LENGTH OF SAMPLE RECOVERED
DD —DRY DENSITY, LB. PER CU. FOOT

WO —WASHOUT
A —AUGER
HS —HOLLOW STEM AUGER
SS —SPLIT SPOON
ST —SHELBY TUBE
FT —FISH TAIL
C —CORE
Wc —WATER CONTENT PERCENT

BCR—BEFORE CASING REMOVAL
ACR—AFTER CASING REMOVAL
WD —WHILE DRILLING
WCI —WET CAVE IN
DCI —DRY CAVE IN
Qu —UNCONFINED COMPRESSIVE STRENGTH POUNDS PER SQUARE FOOT

FOR: Sexton Filling & Grading Corporation

PROJECT: 12100 West 31st Street

LOCATION Westchester, Illinois

METHOD OF BORING: HS
SPLIT SPOON SIZE: 2 IN.
WT. OF HAMMER 140 LBS.
INCH DROP 30
SHELBY TUBE SIZE
CASING USED 50'-2¼" IDHS

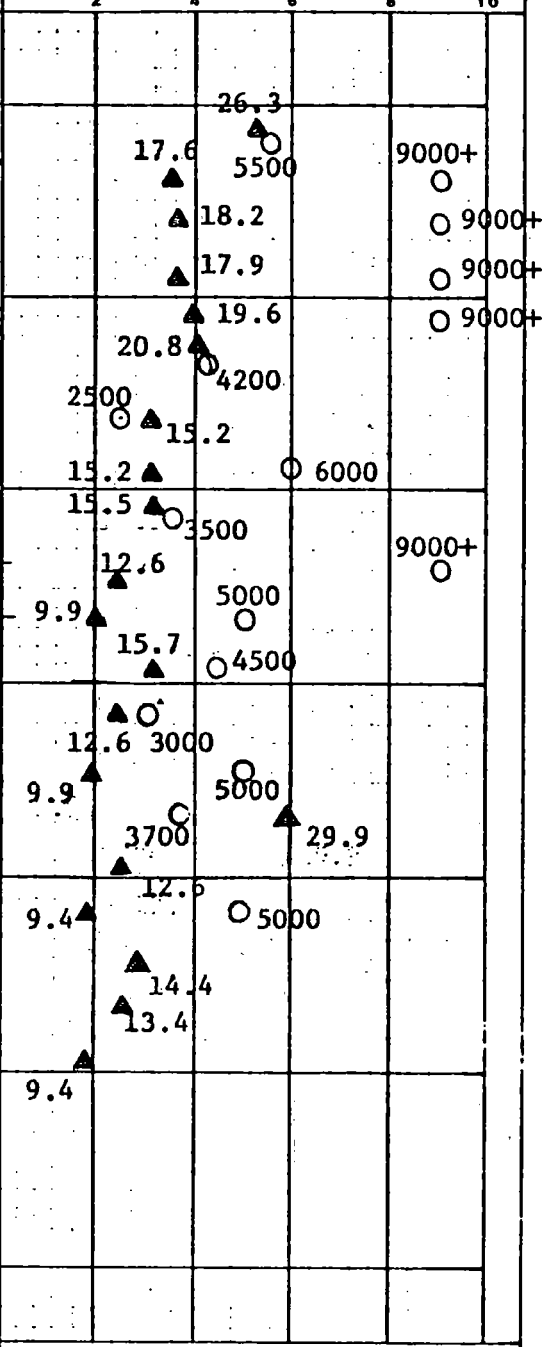
WATER LEVEL READINGS
31.0' W.D.
46.6' B.C.R.
29.0' A.C.R.
16.2' @24 HRS. AFTER DRILLING
HRS. AFTER DRILLING

SOIL BORING LOG NO. 8

WALTER H. FLOOD & CO., INC.
• Engineers •
• CHICAGO • KALAMAZOO •

DATE OF BORING: 3-16-72
BY: BJ&JA:bc
JOB NO.: 7205-0010
VERTICAL SCALE: 1"=10'

ELEV.	DEPTH	S	T	N	L	R	DD	DESCRIPTION
661.0	0.0							Ground surface
		1	ss	19				Brown and gray clay, trace of small gravel, hard to very tough
		2	ss	27				
		3	ss	28				
		4	ss	31				
		5	ss	25				
		6	ss	14				
645.0	16.0	7	ss	10				Gray clay, trace of small to large gravel, occasional sand layer, tough to hard
		8	ss	16				
		9	ss	17				
627.2	33.8							
626.5	34.5	10	ss	29				Coarse sand layer
624.5	36.5	11	ss	106				See note
		12	ss	14				Gray fine sand and silt, dense
620.0	41.0	13	ss	69				Gray clay, trace of small to large gravel, very tough
617.5	43.5	14	ss	54				Gray silt, some fine to medium sand, small to large gravel, boulders, very dense
		15	ss	39				
		16	ss	50				
		17	ss	39				
		18	ss	77				
		19	ss	126				
611.0	50.0	20	ss	100				
								End of boring Note: Gray clay, trace of small gravel, tough to very tough



LEGEND:
DEPTH—FEET BELOW GROUND SURFACE
S —SAMPLE NUMBER
T —TYPE OF SAMPLE
N —PENETRATION, BLOWS PER FOOT
L —SAMPLE LENGTH
R —LENGTH OF SAMPLE RECOVERED
DD —DRY DENSITY, LB. PER CU. FOOT

WO —WASHOUT
A —AUGER
HS —HOLLOW STEM AUGER
SS —SPLIT SPOON
ST —SHELBY TUBE
FT —FISH TAIL
C —CORE
Wc —WATER CONTENT PERCENT

BCR—BEFORE CASING REMOVAL
ACR—AFTER CASING REMOVAL
WD —WHILE DRILLING
WCI —WET CAVE IN
DCI —DRY CAVE IN
Qu —UNCONFINED COMPRESSIVE STRENGTH POUNDS PER SQUARE FOOT

FOR: Sexton Filling & Grading Corporation

PROJECT: 12100 West 31st Street

LOCATION: Westchester, Illinois

SOIL BORING LOG NO. 9

WALTER H. FLOOD & CO., INC.

• Engineers •

• CHICAGO • KALAMAZOO •

METHOD OF BORING: HS
SPLIT SPOON SIZE: 2 IN.
WT. OF HAMMER 140 LBS.
INCH DROP 30
SHELBY TUBE SIZE
CASING USED 20'-2¼" IDHS

WATER LEVEL READINGS
18.5' W.D.
19.0' B.C.R.
17.2' A.C.R.
17.0' @24 HRS. AFTER DRILLING
HRS. AFTER DRILLING

DATE OF BORING: 3-29-72 BY: BJ&JA:bc

JOB NO.: 7205-0010 VERTICAL SCALE: 1"=10'

ELEV.	DEPTH	S	T	N	L	R	DD	DESCRIPTION
658.8	0.0							Ground surface
657.8	1.0	1	ss	9				Dark brown clay
		2	ss	33				Brown and gray clay, trace of small gravel, tough to hard
652.8	6.0	3	ss	11				Brown clayey fine sand, medium dense
650.3	8.5	4	ss	10				Brown clay, trace of small gravel, tough
647.8	11.0	5	ss	9				Gray fine to medium sand, some silt, clay, small to medium gravel, medium dense
		6	ss	22				
642.8	16.0	7	ss	6				Gray silt, some fine sand, small gravel, loose
640.3	18.5	8	ss	30				See note
637.8	21.0	9	ss	100/9½"				Light gray dolomite, thinly bedded, fractured, dense
		10	C					
631.8	27.0							End of boring

Note: Gray silt, some small to large gravel, stone fragments, occasional boulder, dense

Qu ● LABORATORY O PENETROMETER
X 1000
2 4 6 8 10

3000 ○ ▲ 20.9
▲ 16.6 ○ 9000+
3000 ○ ▲ 19.0

10 20 30 40 50
Wc ▲ NATURAL

LEGEND:
DEPTH—FEET BELOW GROUND SURFACE
S —SAMPLE NUMBER
T —TYPE OF SAMPLE
N —PENETRATION, BLOWS PER FOOT
L —SAMPLE LENGTH
R —LENGTH OF SAMPLE RECOVERED
DD —DRY DENSITY, LB. PER CU. FOOT

WO —WASHOUT
A —AUGER
HS —HOLLOW STEM AUGER
SS —SPLIT SPOON
ST —SHELBY TUBE
FT —FISH TAIL
C —CORE
Wc —WATER CONTENT PERCENT

BCR—BEFORE CASING REMOVAL
ACR—AFTER CASING REMOVAL
WD —WHILE DRILLING
WCI—WET CAVE IN
DCI—DRY CAVE IN
Qu —UNCONFINED COMPRESSIVE STRENGTH POUNDS PER SQUARE FOOT

FOR: Sexton Filling & Grading Corporation

PROJECT: 12100 West 31st Street

LOCATION: Westchester, Illinois

METHOD OF BORING: HS
SPLIT SPOON SIZE: 2 IN.
WT. OF HAMMER 140 LBS.
INCH DROP 30
SHELBY TUBE SIZE
CASING USED 37'-2¼" IDHS

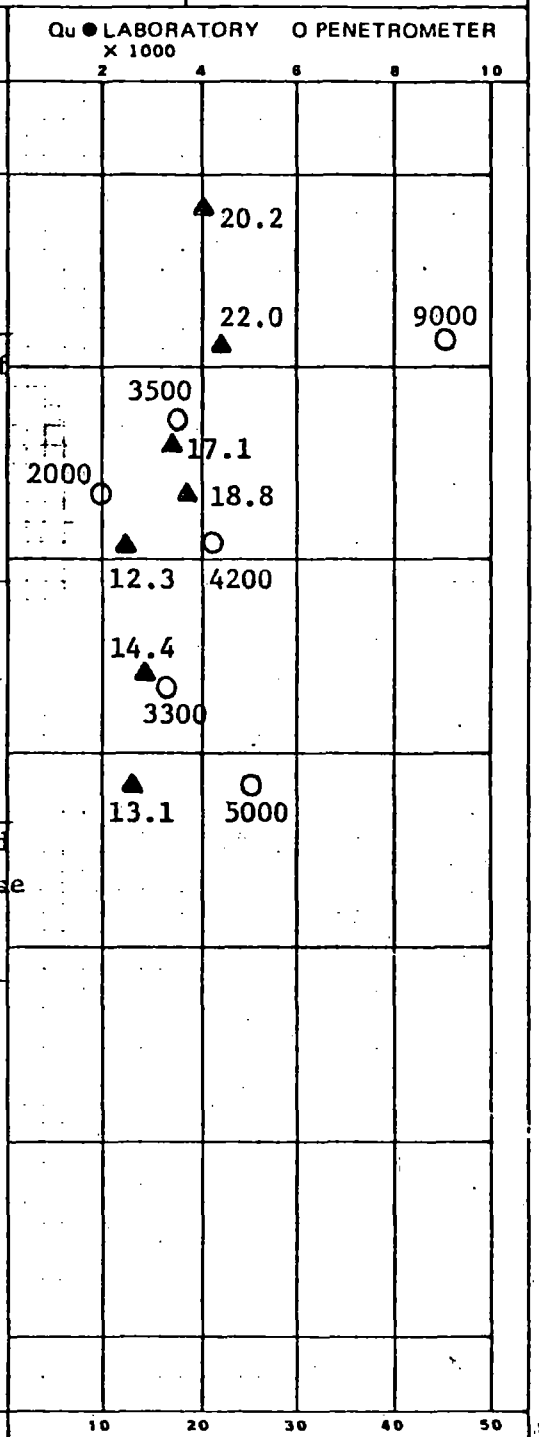
WATER LEVEL READINGS
6.0' W.D.
21.7' B.C.R.
20.5' A.C.R.
5.7'@24 HRS. AFTER DRILLING
HRS. AFTER DRILLING

SOIL BORING LOG NO. 10

WALTER H. FLOOD & CO., INC.
• Engineers •
• CHICAGO • KALAMAZOO •

DATE OF BORING: 3-17-72
BY: BJ&JA:bc
JOB NO.: 7205-0010
VERTICAL SCALE: 1"=10'

ELEV.	DEPTH	S	T	N	L	R	DD	DESCRIPTION
								Ground surface
656.5	0.0							
		1	ss	12				Fill, brown&black clay,wood
		2	ss	20				
		3	ss	7				
648.0	8.5							
		4	ss	22				Brown and gray clay, trace of small gravel, hard to very tough
		5	ss	12				
		6	ss	12				
		7	ss	12				
		8	ss	20				
635.5	21.0							
		9	ss	50/4"				Gray silt, some fine to coarse sand, small to large gravel, occasional boulder, very dense
		10	ss	100/2"				
630.5	26.0							
		11	ss	17				Gray clay, trace of small to large gravel, tough to very tough
		12	ss	21				
		13	ss	61				
623.0	33.5							
		14	ss	110				Gray silt,fine to coarse sand small to large gravel,boulders,stone fragments,very dense
		15	ss	100/3"				
619.5	37.0							
		16	C					Light gray dolomite, thinly bedded, fractured, dense
615.0	41.5							
								End of boring



LEGEND:
DEPTH—FEET BELOW GROUND SURFACE
S —SAMPLE NUMBER
T —TYPE OF SAMPLE
N —PENETRATION, BLOWS PER FOOT
L —SAMPLE LENGTH
R —LENGTH OF SAMPLE RECOVERED
DD —DRY DENSITY, LB. PER CU. FOOT

WO —WASHOUT
A —AUGER
HS —HOLLOW STEM AUGER
SS —SPLIT SPOON
ST —SHELBY TUBE
FT —FISH TAIL
C —CORE
Wc —WATER CONTENT PERCENT

BCR—BEFORE CASING REMOVAL
ACR—AFTER CASING REMOVAL
WD —WHILE DRILLING
WCI —WET CAVE IN
DCI —DRY CAVE IN
Qu —UNCONFINED COMPRESSIVE STRENGTH POUNDS PER SQUARE FOOT

FOR: Sexton Filling & Grading Corporation

PROJECT: 12100 West 31st Street

LOCATION Westchester, Illinois

METHOD OF BORING: HS
SPLIT SPOON SIZE: 2 IN.
WT. OF HAMMER 140 LBS.
INCH DROP 30
SHELBY TUBE SIZE
CASING USED 17'-2¼" IDHS

WATER LEVEL READINGS
13.5' W.D.
11.6' B.C.R.
14.3' A.C.R.
12.5'@24 HRS. AFTER DRILLING
HRS. AFTER DRILLING

SOIL BORING LOG NO. 11

WALTER H. FLOOD & CO., INC.

• Engineers •

• CHICAGO • KALAMAZOO •

DATE OF BORING: 6-14-72

BY: DL&BS:bc

JOB NO.: 7205-0010

VERTICAL SCALE: 1"=10'

ELEV.	DEPTH	S	T	N	L	R	DD	DESCRIPTION
								Ground surface
655.2	0.0							Black and gray silt, clay
654.2	1.0	1	ss	21				Gray silt, fine sand layers, medium dense
		2	ss	20				
650.2	5.0	3	ss	10				Brown fine to coarse sand, some silt, small to large gravel, medium dense
		4	ss	26				
645.2	10.0	5	ss	45				Brown silt, fine sand, small to large gravel, boulders
		6	ss	40				
		7	ss	34				
637.7	17.5	8	ss	100/2"-5"				Light gray and brown dolomite thinly bedded, fractured, dense
		9	C					
632.7	22.5							End of boring

Qu ● LABORATORY O PENETROMETER
× 1000
2 4 6 8 10

10 20 30 40 50
Wc ▲ NATURAL

LEGEND:
DEPTH—FEET BELOW GROUND SURFACE
S —SAMPLE NUMBER
T —TYPE OF SAMPLE
N —PENETRATION, BLOWS PER FOOT
L —SAMPLE LENGTH
R —LENGTH OF SAMPLE RECOVERED
DD —DRY DENSITY, LB. PER CU. FOOT

WO —WASHOUT
A —AUGER
HS —HOLLOW STEM AUGER
SS —SPLIT SPOON
ST —SHELBY TUBE
FT —FISH TAIL
C —CORE
Wc —WATER CONTENT PERCENT

BCR—BEFORE CASING REMOVAL
ACR—AFTER CASING REMOVAL
WD —WHILE DRILLING
WCI —WET CAVE IN
DCI —DRY CAVE IN
Qu —UNCONFINED COMPRESSIVE STRENGTH POUNDS PER SQUARE FOOT

FOR: Sexton Filling & Grading Corporation

PROJECT: 12100 West 31st Street

LOCATION Westchester, Illinois

SOIL BORING LOG NO. 12

WALTER H. FLOOD & CO., INC.

• Engineers •

• CHICAGO • KALAMAZOO •

METHOD OF BORING: HS
SPLIT SPOON SIZE: 2 IN.
WT. OF HAMMER 140 LBS.
INCH DROP 30
SHELBY TUBE SIZE
CASING USED 15'=2½" IDHS

WATER LEVEL READINGS
10.0' W.D.
9.1' B.C.R.
7.4' A.C.R.
7.3'@24 HRS. AFTER DRILLING
HRS. AFTER DRILLING

DATE OF BORING: 6-14-72
BY: DL&BS:bc
JOB NO.: 7205-0010
VERTICAL SCALE: 1"=10'

ELEV.	DEPTH	S	T	N	L	R	DD	DESCRIPTION
651.6	0.0							Ground surface
650.1	11.5	1	ss	17				See note
								Brown fine sand, some silt, medium dense
		2	ss	17				
		3	ss	22				
		4	ss	29				
641.6	10.0							
		5	ss	17				Gray silt, some fine to coarse sand, small to large gravel, boulders, medium to very dense
		6	ss	113				
636.6	15.0	7	C					Light gray dolomite, thinly bedded, fractured, dense
633.6	18.0							End of boring
								Note: Gray silt, small to large gravel, boulders

Qu ● LABORATORY O PENETROMETER
X 1000
2 4 6 8 10

10 20 30 40 50
Wc ▲ NATURAL

LEGEND:
DEPTH—FEET BELOW GROUND SURFACE
S — SAMPLE NUMBER
T — TYPE OF SAMPLE
N — PENETRATION, BLOWS PER FOOT
L — SAMPLE LENGTH
R — LENGTH OF SAMPLE RECOVERED
DD — DRY DENSITY, LB. PER CU. FOOT

WO — WASHOUT
A — AUGER
HS — HOLLOW STEM AUGER
SS — SPLIT SPOON
ST — SHELBY TUBE
FT — FISH TAIL
C — CORE
Wc — WATER CONTENT PERCENT

BCR — BEFORE CASING REMOVAL
ACR — AFTER CASING REMOVAL
WD — WHILE DRILLING
WCI — WET CAVE IN
DCI — DRY CAVE IN
Qu — UNCONFINED COMPRESSIVE STRENGTH POUNDS PER SQUARE FOOT

FOR: Sexton Filling & Grading Corporation

PROJECT: 12100 West 31st Street

LOCATION Westchester, Illinois

METHOD OF BORING: HS
SPLIT SPOON SIZE: 2 IN.
WT. OF HAMMER 140 LBS.
INCH DROP 30
SHELBY TUBE SIZE
CASING USED 22'-2¼" IDHS

WATER LEVEL READINGS
13.5' W.D.
10.8' B.C.R.
11.9' A.C.R.
12.2' @24 HRS. AFTER DRILLING
HRS. AFTER DRILLING

SOIL BORING LOG NO. 13

WALTER H. FLOOD & CO., INC.

• Engineers •

• CHICAGO • KALAMAZOO •

DATE OF BORING: 6-14-72 BY: DL&BS:bc

JOB NO.: 7205-0010 VERTICAL SCALE: 1"=10'

ELEV.	DEPTH	S	T	N	L	R	DD	DESCRIPTION
								Ground surface
651.2	0.0							
		1	ss	13				Gray clay, trace of small to large gravel, very tough
		2	ss	11				
		3	ss	29				
643.7	7.5							
		4	ss	18				See note 1
641.2	10.0							
		5	ss	7				Gray clayey silt, trace of small gravel
638.7	12.5							
		6	ss	23				See note 2
636.2	15.0							
		7	ss	26				Gray fine sand, trace of silt, medium dense
633.7	17.5							
		8	ss	28				Gray silt, some fine to coarse sand, small to large gravel, boulders
		9	ss	100/5"				
628.7	22.5							
		10	C					Light gray dolomite, thinly bedded, fractured, dense
623.7	27.5							
								End of boring

Note 1: Gray medium sand, some silt, small to large gravel, boulders, medium dense

Note 2: Gray fine to medium sand, some silt, small to large gravel, medium dense

Qu ● LABORATORY O PENETROMETER
X 1000
2 4 6 8 10

17.4 ▲ 6000 O
18.2 ▲ 5000 O
17.1 ▲ 5000 O

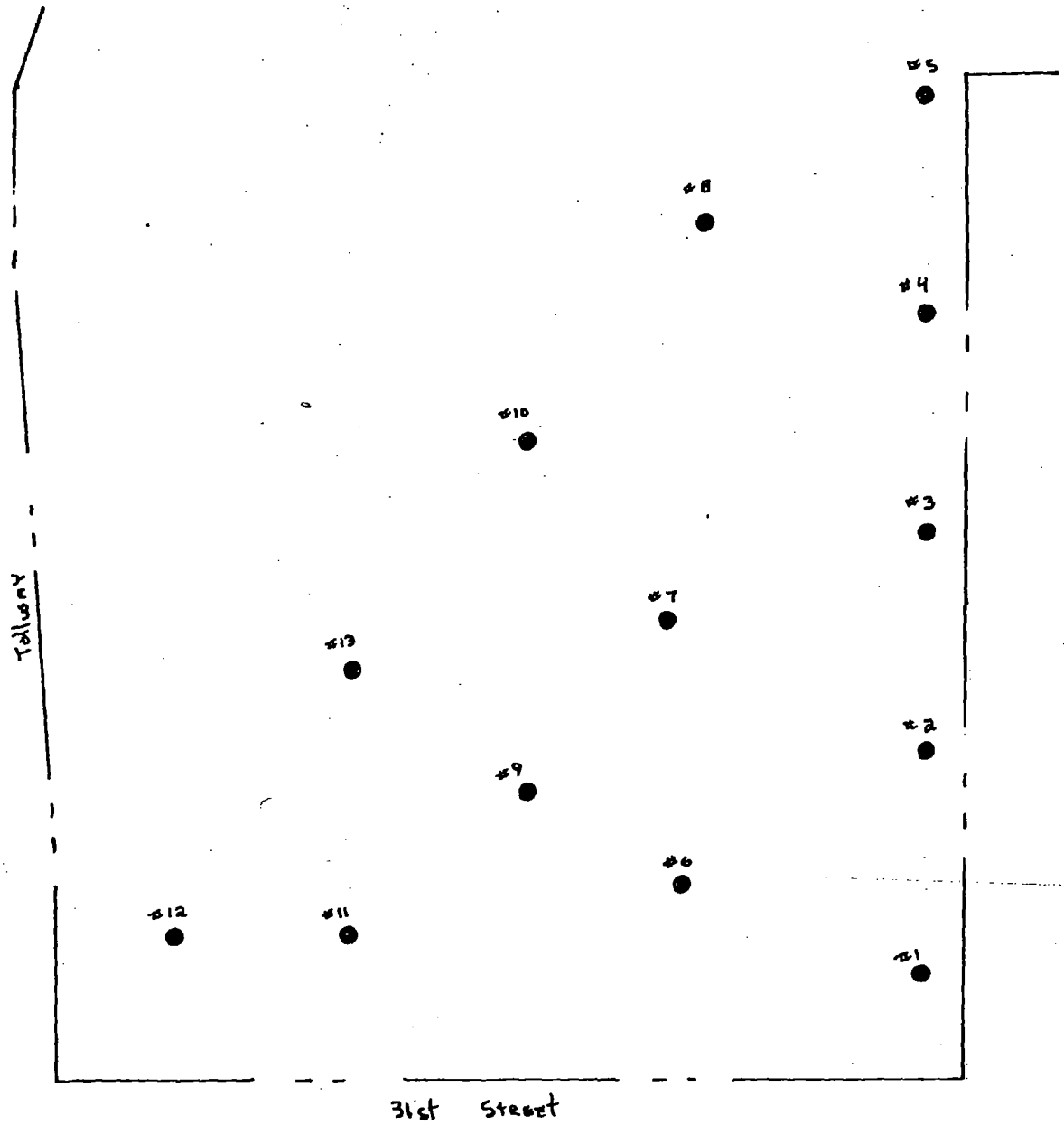
10 20 30 40 50
Wc ▲ NATURAL

ELEV.	DEPTH	S	T	N	L	R	DD	DESCRIPTION

LEGEND:
DEPTH—FEET BELOW GROUND SURFACE
S —SAMPLE NUMBER
T —TYPE OF SAMPLE
N —PENETRATION, BLOWS PER FOOT
L —SAMPLE LENGTH
R —LENGTH OF SAMPLE RECOVERED
DD —DRY DENSITY, LB. PER CU. FOOT

WO —WASHOUT
A —AUGER
HS —HOLLOW STEM AUGER
SS —SPLIT SPOON
ST —SHELBY TUBE
FT —FISH TAIL
C —CORE
Wc —WATER CONTENT PERCENT

BCR—BEFORE CASING REMOVAL
ACR—AFTER CASING REMOVAL
WD —WHILE DRILLING
WCI —WET CAVE IN
DCI —DRY CAVE IN
Qu —UNCONFINED COMPRESSIVE STRENGTH POUNDS PER SQUARE FOOT



Note: ● Boring Locations are located on a 100 ft grid system with N/S baseline at Northern property line & E/W baseline at East ℄

#1	6w/30S	#7	11.65w/42S
#2	6w/45S	#8	11w/33S
#3	6w/40.5S	#9	15w/46S
#4	6w/35S	#10	15w/38S
#5	6w/20S	#11	19w/49S
#6	11.5w/48S	#12	29w/49S
		#13	19w/43S

N

SOIL BORING LOCATIONS
JOHN SEXTON SAND & GRAVEL
OAKBROOK ILLINOIS

WALTER H. FLOOD & CO. INC.	
SCALE 1" = 400'	BY RJF
JOB / LAB NO. 7205e010	DATE 7/19/72

FORM 1 5M 6-66 SSP